

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Andreas MESCHENMOSER)
) Applications Branch
 Appln. No. : Not yet assigned)
)
 Filed : Concurrently here)
)
 For : A SELF-ADJUSTING DEFLECTION CONTROLLED ROLL

PRELIMINARY AMENDMENT

Commissioner of Patents and Trademarks
Washington, DC 20231

Sir :

Prior to the examination of the above-identified patent application, the Examiner is respectfully requested to amend the claims as follows:

IN THE CLAIMS

Please amend the claims as follows (Marked-up copies of the amended claims are attached to the Appendix):

3. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the bearing sleeve (22) is also radially supported at the carrier (14) transversely to the pressing plane via the guide means (26).

4. (Amended) A deflection controlled roll in accordance claim 1, characterized in that the guide means (26) include at least one guide member (26') rotatably mounted in the bearing sleeve (22) or the carrier (14) about an axis (Y) perpendicular to the pressing plane,

said guide member sliding as a follower in a guide (26") provided at the carrier (14) or at the bearing sleeve (22) and being displaceably guided by this essentially parallel to the pressing plane perpendicular to the roll axis X.

6. (Amended) A deflection controlled roll in accordance with claim 4, characterized in that the guide (26") cooperating with a respective guide member (26') is formed at a counter plate (28) secured to the carrier (14) or to the bearing sleeve.

7. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the guide member (26') is formed by a flange with a collar or the like.

8. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the roll jacket (12) is axially fixed to the carrier (14) at the axial end at the drive side via the guide means (26) associated with a relevant bearing housing (24).

9. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the roll jacket (12) is supported radially at the other axial end, preferably at the guide side, at the carrier (14) transversely to the pressing force plane via the axial bearing sleeve (22) of a relevant bearing housing (24), but is axially displaceable relative to it.

12. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that at least one piston in cylinder arrangement (34) acting generally in the pressing plane perpendicular to the roll axis (X) is provided radially between the bearing

sleeve (22) of a respect bearing housing (24) and the carrier (14).

14. (Amended) A deflection controlled roll in accordance with claim 12, characterized in that the piston in cylinder arrangement (34) is provided to relieve the roll jacket (12) from the weight forces acting outside the working width of the roll jacket (12) and/or to load or to relieve the respective jacket end in order to influence the pressing force distribution in the press nip by controlled pressure medium loading and/or to fix the roll jacket (12) in place in a position raised from a counter roll by shutting off the pressure medium backflow from the piston in cylinder arrangement (34).

15. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the bearing sleeve (22) of a respective bearing housing (24) is provided in the region of a carrier spigot (14') narrowed with respect to the axially central region of the carrier (14).

17. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the piston (34') of the piston in cylinder arrangement (34) acting on the bearing sleeve (22) comprises a relief chamber (36) fed with pressure fluid at its side confronting the bearing sleeve (22).

19. (Amended) A deflection controlled roll in accordance with claim 17, characterized in that the feeding of the relief chamber (36) takes place via the pressure chamber (42) of the piston in cylinder arrangement (34) and through the piston (34').

20. (Amended) A deflection controlled roll in accordance with claim 17, characterized in that the feeding of the relief chamber (36) takes place from the side of the bearing sleeve (22).

21. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the piston (34') of the piston in cylinder arrangement (34) directly contacts the inner side of the bearing sleeve (22).

22. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the piston (34') of the piston in cylinder arrangement (34) contacts a shallow side of an intermediate member (38) arranged between the carrier (14) and the bearing sleeve (22).

23. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that at least one axial end of the roll jacket (12) or the axial continuation (12') associated with this is rotatably mounted at the bearing sleeve (22) by two axially spaced apart bearings (20).

25. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that it is made as a single-zone roll, i.e. at least the support members (18) can be loaded with the same pressure.

26. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that it is made as a multi-zone roll, i.e. at least some of the support members

(18) can be loaded with different pressures.

27. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the axial end of the roll jacket (12) at the drive side or the axial continuation (12') associated with it outwardly radially carries a gear ring (48) serving for the roll drive.

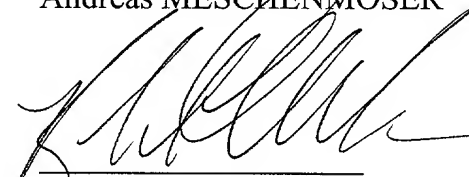
28. (Amended) A deflection controlled roll in accordance with claim 1, characterized in that the axial centers of the gear ring (48), of the bearing arrangement (20) rotatably holding the roll jacket (12) at the bearing housing (24), of the guide means (26) and/or of the piston in cylinder arrangement (34) lie substantially in a common plane (E) perpendicular to the roll axis (X).

REMARKS

The Examiner is respectfully requested to enter the foregoing amendment prior to examination of the above-identified patent application.

Should there be any questions, the Examiner is invited to contact the undersigned at the below listed number.

Respectfully submitted,
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APPENDIX

Marked-Up Copies of the Amended Claims:

3. (Amended) A deflection controlled roll in accordance with claim 1 [or claim 2], characterized in that the bearing sleeve (22) is also radially supported at the carrier (14) transversely to the pressing plane via the guide means (26).

4. (Amended) A deflection controlled roll in accordance [with any one of the preceding claims] claim 1, characterized in that the guide means (26) include at least one guide member (26') rotatably mounted in the bearing sleeve (22) or the carrier (14) about an axis (Y) perpendicular to the pressing plane, said guide member sliding as a follower in a guide (26'') provided at the carrier (14) or at the bearing sleeve (22) and being displaceably guided by this essentially parallel to the pressing plane perpendicular to the roll axis X.

6. (Amended) A deflection controlled roll in accordance with claim 4 [or claim 5], characterized in that the guide (26'') cooperating with a respective guide member (26') is formed at a counter plate (28) secured to the carrier (14) or to the bearing sleeve.

7. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the guide member (26') is formed by a flange with a collar or the like.

8. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the roll jacket (12) is axially fixed to the carrier (14) at the axial end at the drive side via the guide means (26) associated with a

relevant bearing housing (24).

9. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the roll jacket (12) is supported radially at the other axial end, preferably at the guide side, at the carrier (14) transversely to the pressing force plane via the axial bearing sleeve (22) of a relevant bearing housing (24), but is axially displaceable relative to it.

12. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that at least one piston in cylinder arrangement (34) acting generally in the pressing plane perpendicular to the roll axis (X) is provided radially between the bearing sleeve (22) of a respect bearing housing (24) and the carrier (14).

14. (Amended) A deflection controlled roll in accordance with claim 12 [or claim 13], characterized in that the piston in cylinder arrangement (34) is provided to relieve the roll jacket (12) from the weight forces acting outside the working width of the roll jacket (12) and/or to load or to relieve the respective jacket end in order to influence the pressing force distribution in the press nip by controlled pressure medium loading and/or to fix the roll jacket (12) in place in a position raised from a counter roll by shutting off the pressure medium backflow from the piston in cylinder arrangement (34).

15. (Amended) A deflection controlled roll in accordance with [any one of the

preceding claims] claim 1, characterized in that the bearing sleeve (22) of a respective bearing housing (24) is provided in the region of a carrier spigot (14') narrowed with respect to the axially central region of the carrier (14).

17. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the piston (34') of the piston in cylinder arrangement (34) acting on the bearing sleeve (22) comprises a relief chamber (36) fed with pressure fluid at its side confronting the bearing sleeve (22).

19. (Amended) A deflection controlled roll in accordance with claim 17 [or claim 18], characterized in that the feeding of the relief chamber (36) takes place via the pressure chamber (42) of the piston in cylinder arrangement (34) and through the piston (34').

20. (Amended) A deflection controlled roll in accordance with claim 17 [or claim 18], characterized in that the feeding of the relief chamber (36) takes place from the side of the bearing sleeve (22).

21. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the piston (34') of the piston in cylinder arrangement (34) directly contacts the inner side of the bearing sleeve (22).

22. (Amended) A deflection controlled roll in accordance with [any one of claims 1 to 20] claim 1, characterized in that the piston (34') of the piston in cylinder arrangement

(34) contacts a shallow side of an intermediate member (38) arranged between the carrier (14) and the bearing sleeve (22).

23. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that at least one axial end of the roll jacket (12) or the axial continuation (12') associated with this is rotatably mounted at the bearing sleeve (22) by two axially spaced apart bearings (20).

25. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that it is made as a single-zone roll, i.e. at least the support members (18) can be loaded with the same pressure.

26. (Amended) A deflection controlled roll in accordance with [any one of claims 1 to 24] claim 1, characterized in that it is made as a multi-zone roll, i.e. at least some of the support members (18) can be loaded with different pressures.

27. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the axial end of the roll jacket (12) at the drive side or the axial continuation (12') associated with it outwardly radially carries a gear ring (48) serving for the roll drive.

28. (Amended) A deflection controlled roll in accordance with [any one of the preceding claims] claim 1, characterized in that the axial centers of the gear ring (48), of the bearing arrangement (20) rotatably holding the roll jacket (12) at the bearing housing (24),

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of the guide means (26) and/or of the piston in cylinder arrangement (34) lie substantially in a common plane (E) perpendicular to the roll axis (X).